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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Administration
Bureau of Entomology and Plant Quarantine
In Cooperation With
Other Departmental and State Officials

INFORMATION RELATING TO THE COOPERATIVE SURVEY
OF THE GOLDEN NEMATODE OF POTATOES

The potato nematode, or golden nematode as it is sometimes called and which has been recognized for some time as a serious potato pest of northern Europe, has become established in a very limited area in Long Island, New York. Considerable study and attention have been devoted to this pest by the New York State Department of Agriculture and Markets and the U. S. Department of Agriculture. The New York State Department of Agriculture and Markets has placed a State quarantine against the local infested area in connection with which the U. S. Department of Agriculture has been consulted and with which they concur.

Despite the lack of knowledge as to what this organism may mean to the potato industry in the United States, it seems desirable that the U. S. Department of Agriculture in cooperation with state officials make some effort to ascertain if it occurs in other important potato producing areas of the northern states. For this purpose a limited survey is being undertaken, and the aid and cooperation of potato growers are asked for this survey in the interest of protecting the potato industry.

The potato nematode (Heterodera rostochiensis Wollenweber) belongs in the same family with the well-known root-knot nematode, the sugar-beet nematode, the meadow nematode, the potato-stem nematode, the bulb nematode, and many other parasites which are found in this group. It is, however, a distinct species from all the others and is known only to attack the underground parts of potato and tomato plants. The tomato is not an important host. This exceedingly minute worm does not penetrate deeply within the tissues of the plant but lives quite externally, attaching itself to the surface of root or tuber and sucking out the host juices. When full grown it drops off into the soil where it hibernates for a period, usually over winter, before producing its numerous progeny. It causes no evident disease symptoms in the tops, but when it is plentiful the plant is definitely weakened and the crop markedly lessened. It can be spread from place to place by any type of infested soil transport, including dirt carried on tools or implements, earth adhering to root crops, soil debris carried in used sacks or containers, and by surface water flow. It can live over in the soil for several years even in the absence of its hosts. Ordinary rotation practices are not effective in control and no practical methods of soil treatment have yet been developed to kill it out of the soil.

The best time to examine potatoes for this nematode is in the early growth period about the time potatoes would normally flower. Plants as individuals, in sections of rows or in spot areas showing abnormal development not attributable to visible causes, afford the best material for inspection. With a magnifying lens one can then detect it, if present, on the roots and young tubers as minute reddish or orange specks. The vivid color shown at this stage has given rise to the name of the golden nematode. In earlier stages the young parasite is white but it soon changes in color to orange, then to reddish, and finally at maturity to brown. It is extremely small and, even under the best conditions, can be seen with difficulty by the naked eye.

When the adult parasite finally drops off from the root or tuber into the soil, the mature nematode cysts can sometimes be detected in the soil itself owing to their tendency to float in water. If a handful of infested soil is well shaken in water the loosened cysts rise to the surface where they can be seen under a hand lens or can be removed and kept in a preservative for more careful observation under a microscope.

The aid and cooperation of all potato and tomato growers is asked in this survey since continued freedom of our potato industry from this pest is a matter of direct interest to every producer as well as a problem of national concern.

Further information on the survey may be secured from Mr. W. A. McCubbin, 800 Customs House Building, 610 South Canal Street, Chicago 7, Illinois, who is in field charge of the survey.

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